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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/327,351	06/05/1999	STANISLAV I. IONOV	PD-970411	5316

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EXAMINER
PHAN, HANH

ART UNIT	PAPER NUMBER
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

N.K.

Office Action Summary	Application No.	Applicant(s)	
	09/327,351	IONOV ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 12/11/2002.

2. In claims 1 and 22, the phrase "**each of said satellite having a reconfigurable optical transmitter for sending and receiving data streams, each reconfigurable optical transmitter having an optical carrier associated therewith and a reconfigurable optical receiver**" should be changed to --each of said satellite having a reconfigurable optical transmitter and a reconfigurable optical receiver for sending and receiving data streams, each reconfigurable optical transmitter having an optical carrier associated therewith--.

3. In claim 14, the phrase "**wherein each of said satellites comprises a reconfigurable transmitter and a reconfigurable receiver**" should be changed to --wherein each of said satellites comprises a reconfigurable optical transmitter and a reconfigurable optical receiver--.

4. In claim 15, the phrase "**wherein said reconfigurable transmitter**" should be changed to --wherein said reconfigurable optical transmitter--.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 15 recites the limitation " **wherein said reconfigurable transmitter** " in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 16 recites the limitation "**wherein said optical transmitter is tunable to generate a plurality of wavelengths**" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 and 22 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Rockwell (U.S.Patent number 6,327,063).

Regarding claims 1 and 22, referring to Figure 1, Leopold discloses a satellite constellation comprising:

a plurality of satellites (i.e., statellites 150, 160, 170, 180), each of said satellites having an RF ground link for communicating with a ground station and an optical link for communication with at least one of the plurality of satellites for communication with at least one of the plurality of satellites (col. 4, lines 4-62);

said plurality of satellites arranged to have a first subset of satellites (110)(Fig. 1) said first subset of satellites configured to communicate therebetween;

said plurality of satellites arranged to have a second subset of satellites (120)(Fig. 1) having at least one different satellite than that of the first subset, said second subset of satellites are configured to communicate therebetween.

Leopold differs from claims 1 and 22 in that he does not specifically teach each of said satellites having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams, each reconfigurable optical transmitter having a first optical carrier associated therewith. However, Rockwell discloses each of satellites having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams, each reconfigurable optical transmitter having a first optical carrier associated therewith (Fig. 1, col. 1, lines 5-45, and col. 2, lines 6-15). One skilled in the art would have recognized that providing each of the satellites having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams, each reconfigurable optical transmitter having a first optical carrier associated therewith have the advantage of allowing to reduce the number of optical carriers by using a unique optical carrier for each overlapping network path, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite having a reconfigurable optical transmitter and reconfigurable optical receiver as taught by Rockwell in the system of Leopold in order to reduce the number of required optical carriers

for communications between the local area network satellites, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity.

11. Claims 2, 3, 6-9, 23, 24, and 27 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Rockwell (U.S.Patent number 6,327,063) and furher in view of Wainfan et al (U.S.Patent number 6,032,041).

Regarding claims 2 and 23, the combination of Leopold and Rockwell differs from claims 2 and 23 in that it does not specifically teach each of said plurality of satellites comprises a communications table. However, Wainfan discloses each of said plurality of satellites comprises a communications table (38)(Fig. 4, col. 5, lines 22-67 and col. 6, lines 1-18). One skill in the art would have recognized that the benefit of providing each of said plurality of satellites comprises a communications table would have allowed the signals can be differentiated at the satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite comprises a communication table as taught by Wainfan in the system of the combination of Leopold and Rockwell in order to allow the signals can be differentiated at the satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass.

Regarding claims 3 and 24, the combination of Leopold, Rockwell, and Wainfan discloses the communications table has plurality of routes for communicating between satellites in said first subset (Fig. 4 Wainfan).

Regarding claims 6 and 27, it would have been obvious to obtain the reconfigurable optical receiver is one from the group consisting of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating based optical switch in order to select and distribute the signals to the user terminals.

Regarding claim 7, the combination of Leopold, Rockwell, and Wainfan discloses the satellites are in low earth orbit (col. 2 of Wainfan, lines 5-10).

Regarding claim 8, the combination of Leopold, Rockwell, and Wainfan discloses the satellites are in medium earth orbit (col. 2 of Wainfan, lines 5-10).

Regarding claim 9, Leopold further discloses the first and second subsets are aligned with a landmass (Fig. 1).

12. Claims 4, 5, 25, and 26 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Rockwell (U.S.Patent number 6,327,063) and further in view of Koch (U.S.Patent number 5,394,489).

Regarding claims 4 and 25, the combination of Leopold and Rockwell differs from claims 4 and 25 in that it does not specifically teach the reconfigurable optical transmitter comprises an array of laser diodes. However, Koch discloses an optical transmitter comprises an array of laser diodes (Figs. 1 and 3, col. 4, lines 3-60). One skilled in the art would have recognized that the benefit of providing the reconfigurable optical transmitter comprises an array of laser diodes would have allowed to reduce the channel crosstalk and signal loss. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate

the optical transmitter comprises an array of laser diodes as taught by Koch in the system of the combination of Leopold and Rockwell in order to reduce the channel crosstalk and signal loss.

Regarding claims 5 and 26, the combination of Leopold, Rockwell, and Koch teach an optical transmitter is tunable to generate a plurality of wavelengths (Figs. 1 and 3 of Koch, col. 4, lines 3-45).

13. Claim 10 is rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Rockwell (U.S.Patent number 6,327,063) and further in view of Kintis et al (U.S.Patent number 5,661,582).

Regarding claim 10, the combination of Leopold and Rockwell differs from claim 10 in that he does not specifically teach the subset comprises seven satellites using three optical carriers. However, Kintis discloses satellites using plurality of optical carriers (Fig. 2, col. 4, lines 1-62 and col. 5, lines 1-67). One skilled in the art would have recognized that the benefit of providing seven satellites using three optical carriers would have allowed to allocate transmission capacity in the LEO satellite data communication network and reduce the interference between the signals. Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellites using plurality of optical carriers as taught by Kintis in the system of the combination of Leopold and Rockwell in order to allocate transmission capacity in the LEO satellite data communication network and reduce the interference between the signals.

14. Claims 11, 28, and 29 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Kintis et al (U.S.Patent number 5,661,582).

Regarding claims 11, 28, and 29, referring to Figure 1, Leopold discloses a global comunications system comprising:

a plurality of satellites spaced about the earth(Fig. 1);

a first subset of said plurality of satellites (110) forming a local area network over a landmass.

Leopold differs from claims 11, 28, and 29 in that he does not specifically teach first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of optical carriers assigned for communicating with other satellites outside of the subset. However, Kintis teaches first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of signal carriers assigned for communicating with other satellites outside of the subset (Fig. 2, col. 4, lines 1-62 and col. 5, lines 1-67). One skilled in the art would have recognized that providing first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of optical carriers assigned for communicating with other satellites outside of the subset have the advantage of allowing to reduce the interference between the signals. Therefore, it would have obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the satellites as taught by Kintis in the system of Leopold in order to reduce the interference between the signals.

15. Claims 12 and 13 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Kintis et al (U.S.Patent number 5,661,582) and furher in view of Wainfan et al (U.S.Patent number 6,032,041).

Regarding claim 12, the combination of Leopold and Kintis differs from claim 12 in that it does not specifically teach each of said plurality of satellites comprises a communications table. However, Wainfan discloses each of said plurality of satellites comprises a communications table (38)(Fig. 4, col. 5, lines 22-67 and col. 6, lines 1-18). One skill in the art would have recognized that the benefit of providing each of said plurality of satellites comprises a communications table would have allowed the signals can be differentiated at the satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite comprises a communication table as taught by Wainfan in the system of the combination of Leopold and Kintis in order to allow the signals can be differentiated at the satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass.

Regarding claim 13, the combination of Leopold, Kintis, and Wainfan discloses the communication table has a plurality of paths for communication between of said satellites of said first subset (Fig. 4 of Wainfan).

16. Claims 17-21 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Wainfan et al (U.S.Patent number 6,032,041).

Regarding claims 17 and 21, referring to figure 1, Leopold discloses a method of communicating within a satellite communications system comprising the steps of:

deploying a plurality of satellites(Fig. 1);

grouping a first subset of the plurality of satellites (110) into a first local area network, said first subset having fewer than the plurality of satellites.

Leopold differs from claims 17 and 21 in that he does not specifically teach forming a plurality of routes between the satellites in the first local area network and assigning an optical carrier for each route. However, Wainfain discloses not specifically teach forming and assigning an optical carrier for each route (Fig. 4, col. 4, lines 28-42, col. 5, lines 22-52, col. 6, lines 52-61). One skilled in the art would have recognized that the benefit of providing forming a plurality of routes between the satellites in the first local area network and assigning an optical carrier for each route would have allowed the signals can be differentiated at the satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass and reduce the interference between the signals. Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to incorporate the forming a plurality of routes between the satellites in the first local area network and assigning an optical carrier for each route as taught by Wainfan in the system of Leopold in order to the signals can be differentiated at the

satellite without the need for demodulation, reducing the satellite switch size, power consumption, and mass and reduce the interference between the signals.

Regarding claim 18, the combination of Leopold and Wainfan discloses the steps of forming a second local area network by grouping a second subset of the plurality of satellites (120)(Fig. 1 of Leopold) and interconnecting the first local area network and the second local area network to form a wide area network (Fig. 4 of Leopold).

Regarding claims 19 and 20, the combination of Leopold and Wainfan discloses wherein the step of assigning an optical carrier comprises the step of obtaining the optical carrier and route from a respective optical wavelength selector and communication table (Fig. 4 of Wainfan) and the step of assigning comprises the step of reusing the optical carriers.

17. Claim 14 is rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Kintis et al (U.S.Patent number 5,661,582) and further in view of Rockwell (U.S.Patent number 6,327,063).

Regarding claim 14, the combination of Leopold and Kintis differs from claim 14 in that it does not specifically teach a satellite having a reconfigurable optical transmitter and reconfigurable receiver. However, Rockwell discloses a satellite having a reconfigurable optical transmitter and reconfigurable (Fig. 1, col. 1, lines 5-45, and col. 2, lines 6-15). One skilled in the art would have recognized that providing each of the satellites having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams have the advantage of allowing to reduce the number of optical carriers by using a unique optical carrier

for each overlapping network path, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite having a reconfigurable optical transmitter and reconfigurable optical receiver as taught by Rockwell in the system of the combination of Leopold and Kintis in order to reduce the number of required optical carriers for communications between the local area network satellites, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity.

18. Claim 30 is rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153).

Regarding claim 30, referring to figure 1, Leopold discloses a method of communicating within a satellite communications system comprising the steps of:

deploying a plurality of satellites (i.e., statellites 150, 160, 170, 180)(Fig. 1);

grouping a first subset of the plurality of satellites (i.e., grouping a first subset of satellites 150 and 160)(Fig. 2);

superceding said first subset (150 and 160) by grouping a second subset of the plurality of satellites (i.e., grouping a second subset of satellites 170 and 180)(Fig. 1) so that at least one of said first subset is different than said second subset (col. 4, lines 4-62).

Leopold differs from claim 30 in that he does not specifically teach grouping a first subset of the plurality of satellites into a first local area network and grouping a second subset of the

plurality of satellites into a second local area network. However, he teaches that a different combining choice could be used in which a subcarrier is used to carry the short range ISL data. The subcarrier is first modulated by both the long range data and the short range data, and then it is modulated onto the long range carrier (col. 9, lines 60-66). It would have been obvious to obtain grouping a first subset of the plurality of satellites into a first local area network and grouping a second subset of the plurality of satellites into a second local area network in order to provide a satellite communication system for a wide area network.

19. Claims 31 and 32 are rejected under 35U.S.C.103(a) as being unpatentable over Leopold et al (U.S.Patent number 6,477,153) in view of Rockwell (U.S.Patent number 6,327,063).

Regarding claims 31 and 32, Leopold differs from claims 31 and 32 in that he does not specifically teach each of said satellites having a reconfigurable optical transmitter. However, Rockwell discloses each of satellites having a reconfigurable optical transmitter (Fig. 1, col. 1, lines 5-45, and col. 2, lines 6-15). One skilled in the art would have recognized that providing each of the satellites having a reconfigurable optical transmitter have the advantage of allowing to reduce the number of optical carriers by using a unique optical carrier for each overlapping network path, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite having a reconfigurable optical transmitter as taught by Rockwell in the system of Leopold in order to reduce the number of required optical carriers for communications between the local area

network satellites, power consumption, size, weight, cost, and provide satellite data communication networks with high transmission capacity.

20. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

Leslie Pascal

LESLIE PASCAL
PRIMARY EXAMINER